

MONTHLY CURIE LIMIT PROJECTION FOR LANSCE

Purpose

This Air Quality Group procedure describes the method for constructing the monthly administrative curie emission limit used to track LANSCE releases during operation. This administrative limit is imposed for any month following a month in which the *projected* 12-month dose to date from LANSCE exceeds 7.0 mrem as determined by ESH-17-609. This procedure provides a way to meet required actions specified in the "Radioactive Air Emissions Management Plan for LANSCE" (ESH-17-610) and contributes to assuring that LANL complies with the NESHAP 10-mrem dose standard.

Scope

This procedure applies only to radioactive gaseous emissions from LANSCE operations and is performed both by LANSCE and ESH-17. This procedure is used only when the *projected* 12-month dose to date from LANSCE exceeds 7.0 mrem.

In this procedure

This procedure addresses the following major topics:

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Signatures

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General information about this procedure

Attachments This procedure has no attachments.

History of revision This table lists the revision history and effective dates of this procedure.

Revision	Date	Description Of Changes
0	9/1/95	New document.
1	2/5/97	Changed LAMPF to LANSCE and distribution list; added definition of "LANSCE operation." Changed point of contact at LANSCE to Facility Manager. Changed 7-mrem trigger from actual to projected value.

Who requires training to this procedure? The following personnel require training before implementing this procedure:

- ESH-17 group members assigned to calculate projected emissions limits
- LANSCE personnel who provide the information to calculate emission limits

Training method The training method for this procedure is "self-study" (reading) and is documented as applicable according to ESH-17-024 or the LANSCE training procedure.

General information about this procedure, continued

Definitions specific to this procedure

LANSCE Operation: Whenever accelerator beam of any magnitude is being delivered to the beam switchyard. This definition is appropriate because measurable gaseous emissions can not be produced until this condition is met.

Month: Contiguous time periods corresponding roughly to the calendar months but which may be as short as 2 weeks or as long as 6 weeks. Each month will begin on a Monday and end on a Sunday. ESH-17 and LANSCE will formally agree on the weeks assigned to each operating month prior to the beginning of the LANSCE operating cycle to which the months apply. These assignments may be modified at any time provided all weeks are accounted for.

References

The following documents are referenced in this procedure:

- ESH-17-024, "Personnel Training"
- ESH-17-501, "Dose Assessment Using CAP-88"
- ESH-17-609, "Monthly Dose Projection for LANSCE"
- ESH-17-610, "Radioactive Air Emissions Management Plan for LANSCE"

Note

Actions specified within this procedure, unless preceded with "should" or "may," are to be considered mandatory (i.e., "shall").

Projecting releases

Provide projected distribution to ESH-17

Whenever the LANSCE *projected* 12-month dose exceeds 7.0 mrem by the end of a month, as determined by ESH-17-609, and LANSCE operation is also scheduled for the following month, **LANSCE personnel** will have already provided ESH-17 with a projected radionuclide stack release fractional composition for the next month as part of their actions specified in ESH-17-609.

Periodic monitoring

LANSCE personnel monitor the radionuclide fractional composition at least weekly or when a significant configuration change occurs. LANSCE notifies ESH-17 if the C-11 fraction changes by more than 25% of the fractional value reported the previous month.

Steps to estimate the emissions

To project an administrative curie emission limit, **ESH-17** performs the following steps:

Step	Action
1	Select a conservative but realistic meteorology file for the month of interest. (These files are available from the meteorological staff of ESH-17.)
2	Using CAP88 per ESH-17-501, the nuclide fractional composition for a one curie release, the selected meteorology, and standard LANL values for other CAP88 factors, calculate a total curie-per-unit-dose factor in Ci/mrem at the LANL MEI (East Gate).
3	Subtract the oldest monthly value from the 12-month dose to date to determine the rolling 11-month LANSCE dose to the beginning of the projection month. Assure that the most recent (usually last year's) LANSCE diffuse emissions dose is included. Subtract the 11-month dose from 8.5 mrem (or other authorized higher value). Multiply the difference by the Ci/mrem factor to arrive at a total maximum curie limit for the projection month.
4	If possible, provide the curie-limit information to the TA-53 Facility Manager within 3 business days after receiving the emission information from LANSCE.

Projecting releases, continued

Step	Action
5	If LANSCE or ESH-17 has a concern, during the tracking month, that the curie-limit value may not still be reasonable, obtain a current meteorology file from the ESH-17 meteorological staff and run CAP88 with updated emissions and meteorological data. Revise the curie-limit if needed.

Daily emissions tracking

Each day **LANSCE** plots (or tabulates) the measured cumulative curies for the month to date for the corresponding day on a graph (or table).

Note: *Measurements* will occur every operating day, but daily *compilations* of measurements and *projections* will be done only on regular business days. Weekend and holiday compilations and projections will be done on the next business day.

Caution: Exceeding the prorated daily cumulative maximum curie line during the month is acceptable. However, intentionally exceeding the *end-of-month* value *during* the month is prohibited unless LANSCE/ESH and DOE management agree to do so.

Information distribution

Each day when cumulative emissions are updated, **LANSCE** distributes the updated plot or table to at least the following:

DOE/LAAO LANSCE Onsite Facility Representative
TA-53 Facility Manager
AOT-7 Group Leader
ESH-17 NESHAP Project Leader
Others as requested

If the dose projection has exceeded 8 mrem, **LANSCE** also provides DOE/LAAO with at least a weekly copy of the cumulative emissions update.

Records resulting from this procedure

Records

The following records generated as a result of this procedure are to be submitted **within two weeks of generation** to the ESH-17 records coordinator:

- CAP-88 assumptions, input data, and results related to this procedure

The following records generated as a result of this procedure are to be submitted **within two weeks of generation** to the LANSCE records coordinator:

- how the radionuclide composition was determined
- completed month-end graph or table

[Click here to record “self-study” training to this procedure.](#)

